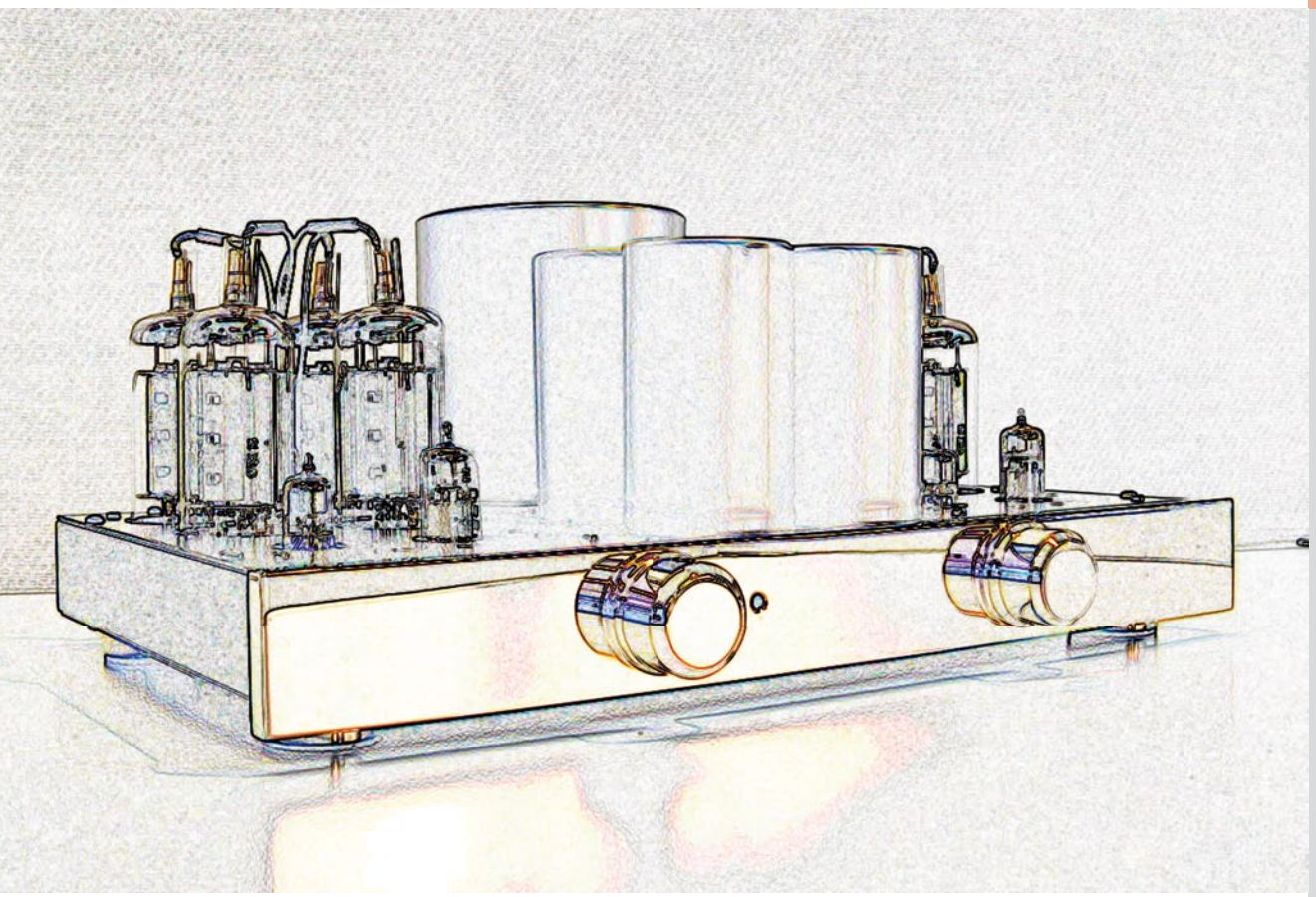

Eternal Arts
by Dr. Burkhardt Schwäbe

...finest audiophile tube design

OWNER'S MANUAL

OTL Power Amplifier Mk II

Preface

In the mid fifties the New York based autodidact Julius Futterman patented the ingenious circuitry of an OTL tube amplifier – a design that allows the amplified signal of the tube to be directly transmitted to the speakers without a detour through hundreds of meters of copper wire wound on iron cores.

When I founded Audiophile Gateway Germany in 2004 I had already dreamt for more than twenty years of a modern interpretation of an OTL amplifier. After the launch of the Mk I in 2004, having now further evolved the technology, I am proud to present here the elaborately redesigned Mk II version dedicated to audiophile listeners all over the world. I am glad that you decided to be one of the enthusiasts who will enjoy the overwhelming authenticity in music reproduction through an EternalArts OTL Power Amplifier.

Dr. Burkhardt Schwäbe

Unpacking

The EternalArts OTL is packed in two cartons (inner and outer) which are separated by polyfoam panels. It is necessary to take care during unpacking and preparation for use as the EternalArts OTL is a precision electronic instrument and reasonably heavy.

Preparation for use

Your EternalArts OTL amplifier is shipped with all the vacuum tubes in place. Before switching your amplifier on it is ABSOLUTELY MANDATORY to check whether all tubes are in their sockets. If not the respective cage must be opened.

Proceed as follows:

a) Using the screwdriver provided, remove the top cage, momentarily setting it and the four screws aside. The second holes on the top to the left and to the right will lead the screw driver to the four white screws which hold the cage from inside.
b) Check tubes and insert them vertically in their proper sockets.
c) Reposition the protective cage by pushing the plastic washers tight under the screws so that the screws find their threads in the chassis without scratching the lacquering.
d) Keep the screwdriver for future use.

Installation

The following guidelines should be observed in order to maximize the performance and service life of your amplifier.

To ensure normal component life and safe operation this unit must be operated only horizontally. Adequate air flow and proper cooling thereby can only be guaranteed if there is no restriction below, behind and above the unit.

The four special non marking feet provide adequate spacing only from a smooth, hard surface. Never operate the unit while it is sitting on a soft surface such as a rug or carpet.

If the unit is to be operated in an enclosure such as an equipment rack, ensure that adequate air flow is provided all around. Improper installation will cause premature tube failure and will affect your warranty, as well as the service life of the unit.

It is normal for a vacuum tube power amplifier to run quite warm, and if used for prolonged periods, hot to the touch. All components within are, however, operated at safe, conservative levels and will not be improperly affected thereby, providing the requirements outlined above are adhered to.

Warnings

1) To prevent fire or shock hazard, do not expose your EternalArts OTL to rain or moisture.
2) This unit contains voltages which can cause serious injury or death. Do not operate with covers removed. Servicing is to be carried out by your authorized EternalArts dealer or other qualified personnel.
3) The shielded 3-conductor MFE High End Power Cord provided with your EternalArts OTL is equipped with a standard three-prong grounding plug. If used normally, it will provide a safe earth ground connection of the chassis.
4) For continued protection against fire hazard, replace fuses only with the same type and rating of fuses as specified at individual fuse holders.

Connection instructions

The rear panel has

- Input sockets for both Stereo-channels
- Output Terminals for both Stereo-channels
- Power Line Connector

Important: Use the best available speaker wire and interconnects. We cannot over-emphasize this. As better components and systems are developed, it becomes increasingly important to avoid the limitations of inferior system interconnections. For best results we recommend EternalArts low capacity interconnects and MFE speaker cables.

The OTL circuitry requires loudspeakers of minimum 8 ohms. The higher the impedance of the speakers connected, the higher the output power of the amplifier. Technically it is possible to connect 4 ohms speakers but the rated power will be reduced and sonically your system may not perform perfectly. However, there are 4 ohm speakers of greater sensitivity in the market which may be recommended without limitations. Speaker systems with significant variations in impedance across the frequency spectrum, such as some electrostatic types, will need to be empirically tested for best overall sonic results.

Connect the EternalArts OTL input to the preamplifier or electronic crossover, using only the highest grade of audio interconnect cables. To avoid sonic degradation use the shortest practical length of cables.

AC power connections: It is essential that the EternalArts OTL be connected to a wall AC power socket, or a similar heavy-duty source. It must not be connected to auxiliary sockets on preamplifiers, etc. Furthermore, the proper control of start-up and shut-down surges may not occur unless the power switch on the front of the EternalArts OTL is actually used for on/off control of the amplifier. The AC power source should be capable of supplying 15 amperes for 120 volt units, or 10 amperes for 240 volt units.

Operating Procedure

1) Make sure you have read and complied with the Installation and Connection instructions prior to attempting operation
2) Make sure your EternalArts OTL is properly connected to a high-current power socket via the attached MFE power cord.
3) Your preamplifier or source volume control should be on and muted and/or set at minimum gain.

4) Turn the power switch. The red power LED indicator next to the knob should glow immediately. Approximately a couple of seconds later the red screen grid LEDs in the center of each output tube should also light up, indicating the proper operation of each tube. Note: If the indicator lamps fail to light, turn the power switch off and check the appropriate fuses for possible failure or the respective tube. Should it have been necessary to replace a tube, the channel in question has to be readjusted. Please refer to the instructions in this manual.

Important note:

Audiophile Gateway Germany does not recommend leaving your EternalArts OTL switched on 24 hours a day as is the custom of some audiophiles to achieve maximum sonic performance on demand. While this is often recommended for solid-state equipment, Audiophile Gateway Germany does not recommend this procedure for vacuum tube power amplifiers. Just have in mind that 2.000 hours of tube life will be used up in 84 days!

Adjustment procedure

Note: When removing the top cover in preparation for any service adjustments, take care to unplug the AC power cord.

The EternalArts OTL utilizes very high quality, commercial and computer grade components which, together with conservative operation of all components and tubes, will provide long service life, if installed and operated within the parameters outlined in this manual.

After vacuum tube failure and replacement, it is necessary to make a single internal bias adjustment for optimum performance and tube life.

Caution: The following internal procedure should not be attempted by the owner unless he is technically qualified. There are high voltages within this unit which can be lethal under certain conditions. The internal bias adjustment should be accomplished by a qualified individual. The unit should be switched off before removal of the tube covers.

Normally, only the output tube idle current requires adjustment in the EternalArts OTL. Use a plastic alignment tool for this adjustment. The trimpots are accessible from the top and are located between the front and the rear output tubes.

Proceed as follows:

a) Connect an amperemeter with 100 - 200 mA resolution to the speaker terminals of the channel in question.
b) Pull out the two small tubes at the front.
c) Pull out carefully the two right row output tubes. Do not wriggle the tubes when pulling as this may damage the tubes.
d) Disconnect the plate top caps and care for isolated positioning of the loose plate top-caps.
Warning: High Voltage!
e) Connect the amplifier to mains and switch on.
f) Adjust to 50 mA by turning the left trimpot slowly. Note: the screwdriver will need to be slightly off vertical for operating at a certain distance to the tubes. Wait for stabilization and correct again.
g) Switch the amplifier off and wait for 5 minutes.
h) Replace the right row of output tubes and connect their plate top-caps.
i) Switch on the OTL.
j) Now use the right trimpot of the tubes just plugged in and adjust until less than 1 mA is indicated on the meter. Note: the screwdriver will need to be slightly off vertical for operating at a certain distance to the tubes. Watch and correct.
k) Switch off the amplifier, replace the small tubes and remount the cover.

Warning:

Warning: This adjustment involves measurements of circuits that are about 400 volts DC above chassis potential, with large energy storage. Use extreme care to avoid shock hazard and to avoid damage to the EternalArts OTL or to your meter due to careless use of test leads. Start with the meter on its highest range before making connections, and then select the 100 mA DC range. Do not attempt current measurements.

Screen Grid LEDs

Red LEDs positioned in the center of each beam power tetrode in series-connexion to the screen grid of a tube are indicators for the screen grid current and glow and glow according to the output power. If they do not light up the respective tube or fuse is defective and has to be renewed.

Servicing

Because of its sophisticated design and exacting standards of manufacture, your EternalArts OTL should normally require only minimal service to maintain its high level of performance.

Caution: The EternalArts OTL contains sufficient levels of voltage and current to be lethal. Do not tamper with a component or part inside the unit. Even with the power turned off, a charge remains in the energy storage capacitors for some time. Refer any needed service to your authorized dealer or other qualified technician.

The twelve vacuum tubes inside the EternalArts OTL are high quality type tubes: EF184, ECC82/12AT7, EL/PL509/519. Replacement tubes need not be matched, although slightly better sonic performance will result if matched sets are used.

Although the circuitry for the output tubes can be soldered to operate either type, EL with 6,3 V heater or PL with 40 V heater, always replace with the same kind of tubes as mixing will cause a heavy defect! For modification to the other heater voltage refer to qualified technician.

Additional questions regarding the operation, maintenance or servicing of your EternalArts OTL may be referred to the Customer Service Department of Audiophile Gateway Germany under: +49 – 511 – 374 64 22.

Cleaning

To maintain the cosmetic appearance of your amplifier, occasionally wipe the front panel and top cover surfaces ONLY with a soft microfiber cloth to remove dust. A mild, non-alkaline soap solution may be used to remove fingerprints or similar smudges. For the gold plated parts purified gasoline may also be used with special care.

EternalArts OTL Specifications

(AC line set to 240 V 50 Hz)

General Data:

Dimensions	44,5 cm (W) x 19,5 cm (H) x 32,5 cm (D)
Weight	16 kg net
Environmental temperature range	10 to 35° C
Humidity range	20 – 80%
Material	black glossy powdered steel chassis, metal caps for c-core transformer and capacitors; front panel, knobs and feet gold plated 24 k
Accessories	MFE electromagnetic shielded High End Power Cable, special screw driver

Power Output:

30 watts continuous at 8 ohms per channel
55 watts continuous at 16 ohms per channel
with less than 1% THD

Frequency Range:

10 to 100.000 Hz ± 1 dB

Input Sensitivity:

1 V eff. for rated output

Input Impedance:

10 Kohms unbalanced

Damping Factor:

35 (100 Hz, 1w, 8 ohms)

Hum & Noise:

Less than -79 dB below rated output

Power Requirements:

120 VAC 60Hz / 240 VAC 50Hz, 220 to 650 watts

Short Circuit Stability:

Short period

Idle Run Stability:

Short period

Tubes:

Output	8 x EL/PL509/519
Driver stage	2 x ECC82 / 12 AU 7
Input stage	2 x EF184

Fuses:

Mains	1 x 4 A slow blow
Power supply	2 x 3,15 A slow blow (power output)
	2 x 0,2 A slow blow (driver)
	1 x 0,4 A slow blow (screen grid)
	1 x 0,2 A slow blow (input)

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